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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
LAVARIAS, ARNEL C	
ART UNIT	**PAPER NUMBER**
2872	

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/778,242	BEAUMONT, MATT
	Examiner	Art Unit
	Arnel C. Lavarias	2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *2/11/05,3/26/04,12/23/03*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4 and 6-33* is/are pending in the application.

4a) Of the above claim(s) *4,6 and 9-33* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,7 and 8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendments to Claim 7 to correct a claim dependency in the appeal brief dated 2/11/05 is acknowledged and accepted.

Response to Arguments

2. In view of the appeal briefs filed on 2/11/05 and 3/26/04, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

3. The Applicant argues that, with respect to Claim 1, Katagiri et al. and Mactaggart both fail to teach or reasonably suggest an apparatus including an optical device having an optical filter having characteristics that vary across a gradient axis thereof, and a memory unit storing calibration data for the specific optical filter, which calibration data relates to optical characteristics which are individual to the specific optical filter in the optical

device. The Examiner respectfully disagrees. As recited in Claim 1, the optical device includes *an optical filter*, i.e. at least one optical filter, and possibly more. However, if there is only a single optical filter, calibration data for that one filter would be specific to that filter only. Applicant's arguments with respect to Katagiri et al. and Mactaggart are flawed since Applicant only argues the case where multiple filters are present, which require multiple calibration data sets for the multiple filters, and does not consider the alternative that the optical device only include a single optical filter, and thus only requires a single calibration data set specific to that sole filter. Both Katagiri et al. and Mactaggart disclose apparatuses similar to that claimed invention. Katagiri et al. discloses apparatus (See in particular Figures 1, 4) including an optical device (See 3 in Figure 1) having an optical filter having characteristics that vary across a gradient axis thereof (See 31 in Figure 4; 40 in Figure 5; Figures 6, 16A-B; Figures 14A-B), and a memory unit (See 10 in Figure 1) storing calibration data for the specific optical filter, which calibration data relates to optical characteristics which are individual to the specific optical filter in the optical device (See col. 15, line 38-col. 16, line 18). In this case, Katagiri et al. only discloses one filter. The calibration data must be specific to that one filter, otherwise the optical system as shown in Figure 1 will not operate to produce the requisite single-mode light output. Similarly, Mactaggart discloses apparatus (See in particular Figures 1, 2, 4, 6) including an optical device (See 24 in Figure 1) having an optical filter having characteristics that vary across a gradient axis thereof (See 24, 28 in Figure 1; Figure 4), and a memory unit (See 132, 134, 140, 142 in Figure 6) storing calibration data for the specific optical filter, which calibration data relates to optical

characteristics which are individual to the specific optical filter in the optical device (See col. 4, line 50-col. 5, line 33; col. 6, line 55-col. 7, line 19). In this case, Mactaggart also only discloses one filter, and thus the calibration data must be specific to that one filter, otherwise the optical system as shown in Figure 1 will not operate to produce the requisite incident infrared light wavelengths for the analyzer.

4. With regard to arguments regarding Mactaggart failing to disclose or reasonably suggest the 'calibration table moving the color wheel', the Examiner notes that such a feature is not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). Claim 1 specifically recites 'a filter moving element, which moves said filter..., wherein said filter moving element is responsive to said calibration data...'. The recitations in Claim 1 do not specifically disclose the calibration data actually moving the filter moving element.

5. With respect to arguments that no list of specified colors are disclosed, the Examiner agrees. After consultation with Primary Examiner Fannie Evans (GAU 2877), it is noted that both Katagiri et al. and Mactaggart both include a single optical filter that operates in the infrared region of the spectrum, a region not generally associated with having color. Thus, the Examiner respectfully withdraws the rejections in Sections 6-10 of the Office Action dated 9/25/03.

6. Claims 1-2, 7-8 are now rejected as follows.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katagiri '724 (U.S. Patent No. 6359724), of record, in view of Christie, Jr. et al. (U.S. Patent No. 4093991).

Katagiri '724 discloses an apparatus (See for example Figures 1, 2, 4, 6, 14A, 14B, 15), comprising an optical device (See 3 in Figure 1) including an optical filter having characteristics that vary across a gradient axis thereof (See 31 in Figure 4; 40 in Figure 5; Figures 14A, 14B); and a memory unit (See 10 in Figure 1), storing calibration data for the specific optical filter, which calibration data relates to optical characteristics which are individual to the specific optical filter in said optical device, and which affects the way said optical filter is used (See for example Figure 6; col. 15, line 38-col. 16, line 18; col. 24, lines 20-40; col. 26, lines 42-62). Katagiri '724 also discloses the apparatus further comprising a filter moving element (See 20 in Figure 4), which moves said filter to change a position of the gradient axis that intersects said optical axis and thereby change a characteristic of filtering, wherein said filter moving element is responsive to said calibration data (See col. 16, lines 19-65). Katagiri '724 also discloses the filter moving element including a motor (See 20 in Figure 4), and servo electronics driving the motor (See 8(9) and 32a in Figure 4), said servo electronics including a memory table

which includes a list of specified infrared wavelengths, and positions for the specified infrared wavelengths, and said positions include said calibration data (See col. 16, lines 19-65). Katagiri '724 further discloses the apparatus further comprising an optical source (See 1 in Figure 1; Figure 4), producing optical energy along an optical axis thereof, said optical axis intersecting said gradient axis of said optical filter (See intersection of incident light and filter 31 in Figure 4). Katagiri '724 lacks the specified infrared wavelengths being specified colors, i.e. the optical filter being a visible wavelength (400-700 nm) optical filter. However, the calibration and use of such visible wavelength optical filters are known in the art. For example, Christie, Jr. et al. teaches an optical apparatus utilizing a calibrated variable circular interference filter (See for example Figures 1, 3, 8A-B), wherein the variable circular interference filter operates in the visible wavelength range (approximately 400-710 nm) and is calibrated by correlating the bandpass centroid versus angular position of the filter for each particular wavelength of interest. This calibration data is then stored in memory, and is utilized by the various instrument circuitries to position the filter at the appropriate angular positions to provide the corresponding wavelength or color filtering (See col. 6, lines 1-27; col. 11, line 24-col. 12, line 66). It is noted that although Christie, Jr. et al. does not specifically disclose correlating color with angular position, wavelengths in the visible range of the spectrum are inherently correlated with color. Thus, one may easily substitute the corresponding color for the appropriate wavelength in the calibration data for wavelengths in the visible range of the spectrum. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the specified infrared

wavelengths in the apparatus of Katagiri '742 be specified colors, i.e. the optical filter being a visible wavelength optical filter, as taught by Christie, Jr. et al., to provide greater filter tunability by extending the wavelength range of operation of the optical system into the visible wavelength region.

9. Claims 1-2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mactaggart (U.S. Patent No. 4602160), of record, in view of Christie, Jr. et al.

Mactaggart discloses an apparatus (See for example Figures 1, 2, 4, 6), comprising an optical device (See 24 in Figure 1) including an optical filter having characteristics that vary across a gradient axis thereof (See 24 and 28 in Figure 1; Figure 4); and a memory unit (See 132, 134, 140, 142 in Figure 6), storing calibration data for the specific optical filter, which calibration data relates to optical characteristics which are individual to the specific optical filter in said optical device, and which affects the way said optical filter is used (See col. 4, line 50-col. 5, line 33; col. 6, line 55-col. 7, line 19). Mactaggart also discloses the apparatus further comprising a filter moving element (See 26 in Figure 1), which moves said filter to change a position of the gradient axis that intersects said optical axis and thereby change a characteristic of filtering, wherein said filter moving element is responsive to said calibration data (See col. 4, line 50-col. 5, line 33; col. 6, line 55-col. 7, line 19). Mactaggart also discloses the filter moving element including a motor (See 26 in Figure 1), and servo electronics driving the motor (See 152 in Figures 1 and 6; 148, 130, 134, 132, 140, 142 in Figure 6), said servo electronics including a memory table which includes a list of specified infrared wavelengths, and positions for the specified infrared wavelengths, and said positions include said calibration data (See

col. 4, line 50-col. 5, line 33; col. 6, line 55-col. 7, line 19). Mactaggart further discloses the apparatus further comprising an optical source (See 18 in Figure 1), producing optical energy along an optical axis thereof, said optical axis intersecting said gradient axis of said optical filter (See intersection of incident light and filter 28 in Figure 1). Mactaggart lacks the specified infrared wavelengths being specified colors, i.e. the optical filter being a visible wavelength (400-700 nm) optical filter. However, the calibration and use of such visible wavelength optical filters are known in the art. For example, Christie, Jr. et al. teaches an optical apparatus utilizing a calibrated variable circular interference filter (See for example Figures 1, 3, 8A-B), wherein the variable circular interference filter operates in the visible wavelength range (approximately 400-710 nm) and is calibrated by correlating the bandpass centroid versus angular position of the filter for each particular wavelength of interest. This calibration data is then stored in memory, and is utilized by the various instrument circuitries to position the filter at the appropriate angular positions to provide the corresponding wavelength or color filtering (See col. 6, lines 1-27; col. 11, line 24-col. 12, line 66). It is noted that although Christie, Jr. et al. does not specifically disclose correlating color with angular position, wavelengths in the visible range of the spectrum are inherently correlated with color. Thus, one may easily substitute the corresponding color for the appropriate wavelength in the calibration data for wavelengths in the visible range of the spectrum. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the specified infrared wavelengths in the apparatus of Mactaggart be specified colors, i.e. the optical filter being a visible wavelength optical filter, as taught by Christie, Jr. et al., to

provide greater filter tunability by extending the wavelength range of operation of the optical system into the visible wavelength region.

10. Claims 7-8 rejected under 35 U.S.C. 103(a) as being unpatentable over Katagiri '724 in view of Christie, Jr. et al. as applied to Claim 1 above, and further in view of So (U.S. Patent No. 5729347).

Katagiri '724 in view of Christie, Jr. et al. discloses the invention as set forth above in Claim 1, except for the calibration data including a table of points indicating a 50% position in a cut on curve instead of center wavelengths. However, So teaches an optical wavelength measurement system for a dielectric interference filter (See for example Figures 3-5) wherein transmission data from the interference filter is measured and stored as calibration data in, for example, a look up table in computer memory (See col. 3, line 62-col. 6, line 65). It is noted that although all wavelength positions in the transmission data are stored (See for example Figure 4), choosing the wavelength position to be a 50% position in the transmission data to represent a particular interference filter is an obvious variant since all the positions in the transmission data is stored and any one of these positions may be used to represent the interference filter. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the calibration data include a table of points indicating a 50% position in a cut on curve, as taught by So, in the apparatus as disclosed by Katagiri '724 in view of Christie, Jr. et al. One would have been motivated to do this to provide higher accuracy wavelength value, as well as provide an appropriate and unique 'label' or 'name', for the interference filters used in the apparatus.

11. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mactaggart in view of Christie, Jr. et al. as applied to Claim 1 above, and further in view of So.

Mactaggart in view of Christie, Jr. et al. discloses the invention as set forth above in Claim 1, except for the calibration data including a table of points indicating a 50% position in a cut on curve instead of center wavelengths. However, So teaches an optical wavelength measurement system for a dielectric interference filter (See for example Figures 3-5) wherein transmission data from the interference filter is measured and stored as calibration data in, for example, a look up table in computer memory (See col. 3, line 62-col. 6, line 65). It is noted that although all wavelength positions in the transmission data are stored (See for example Figure 4), choosing the wavelength position to be a 50% position in the transmission data to represent a particular interference filter is an obvious variant since all the positions in the transmission data is stored and any one of these positions may be used to represent the interference filter. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the calibration data include a table of points indicating a 50% position in a cut on curve, as taught by So, in the apparatus as disclosed by Mactaggart in view of Christie, Jr. et al. One would have been motivated to do this to provide higher accuracy wavelength value, as well as provide an appropriate and unique 'label' or 'name', for the interference filters used in the apparatus.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

'Color', http://en.wikipedia.org/wiki/Color.

The above information is being cited to evidence the conventional knowledge in the art regarding color and its spectral or wavelength/frequency equivalence in the visible region of the electromagnetic spectrum.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arnel C. Lavarias whose telephone number is 571-272-2315. The examiner can normally be reached on M-F 9:30 AM - 6 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Arnel C. Lavarias
4/7/05

DREW A. DUNN
SUPERVISORY PATENT EXAMINER